

40. The method of Claim 31 wherein the temperature of the pulping is in a range of from about 20°C up to about 60°C.

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41. A method of biologically de-inking waste printed paper comprising:
- a) pulping the waste printed paper with an enzyme capable of dislodging ink particles from the waste printed paper in an aqueous medium at an acidic range or neutral range pH, and wherein the ink is dislodged from the waste printed paper by action of said enzyme; and
 - b) removing dislodged ink particles from the resulting pulp containing medium.--

REMARKS

Claims 21-41 are now pending in the above-identified patent application as of this Preliminary Amendment. No new matter is contained in the amendments. Support for the pH range of from 3 to 8 added in the current Specification and in Claims 21 and 31, can be found, for example, on page 6, line 8, of parent application Serial No. 07/518,935. Support for the language regarding high consistency pulping consistency of 12% or greater added in the current Specification and in Claims 28 and 38, can be found, for example, on page 6, lines 1-4, of parent application Serial No. 07/518,935. Support for the language regarding pulping for less than about 1 hour in Claims 29 and 39 can be found, for example, in each of the Examples of the present Specification. Support for the language regarding temperature of the pulping in Claims 30 and 40 can be found, for example, in former Claims 8 and 32.

All de-inking prior to the time of Applicants' invention was performed in an alkaline environment, as it was then believed that alkali was needed to swell the fibers to detach ink from fiber surface. Applicants' invention is a novel and unobvious improvement, which allows de-inking to be performed in an acidic or neutral medium. "Neutral medium" refers to a fibrous suspension of disintegrated waste paper, the pH of which has not been modified by the deliberate addition of chemical agents in order to give it a substantially alkaline character. Depending upon the origins of the water and paper used, the pH of this neutral medium can be above 8, given that the minerals in the water or fillers and binders in the paper can impart a slight alkalinity to the suspension.

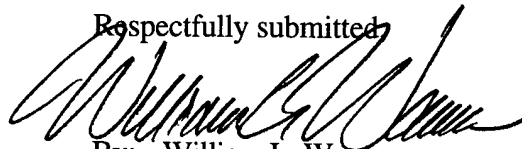
Applicants have entered into the claims the limitation that the pH of the deinking medium is from about 3 to 8, or is in the acidic range or neutral range pH. Applicants intend for the claims to exclude the practice of adding alkali for the purpose of achieving the prior art alkaline

deinking technique. The claims should not be construed to exclude the case where an infringer adds an immaterial amount of alkali for the purpose of attempting to avoid infringement, while achieving an equivalent of the claimed invention by the same function, way and result.

No additional fees are believed due; however, the Commissioner is hereby authorized to charge any additional fees which may be required or credit any overpayment to deposit account no. 10-1215.

This preliminary Amendment places all claims in the present application in condition for allowance, and such action is courteously solicited. The Examiner is invited and encouraged to contact the undersigned attorney of record if such contact will facilitate an efficient examination and allowance of the application.

Respectfully submitted,



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